GOL'DENVEYZER, A. L.

"On the Application of the General Laws of the Theory of Elasticity to Thin Shells," Prik Mate i Mekh. Vol. 8, No. 1, 1944, pp. 3-14

GOL'DENVEYZER, A. L.

"Investigation of Spherical Shells under a State of Strain," Prik Mate i Mekh
Vol. 8, No. 6, pp. 441-467, 1944

GOL'DENVEYZER, A. L.

"Qualitative Investigation of the State of Tension of Thin Shells," Prik Mate i Mekh, Vol. 9, No. 6, 1945, pp. 464-478

GOL'DENVEYZER, A. L.

"On the Integration of a System of Differential Equations of the Theory of Thin Shells," Report at the Meeting on the Theory of Elasticity, Building Mechanics and Plasticity, 25-28 March 1946. Published in the Doklady of the Meeting.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

GOLDENVEYSER, A. L.

Goldenweiser, A. L. Problems of integration of equations of the theory of thin shells. Appl. Math. Mech. [Akad. Nauk SSSR. Prikl. Mat. Mech.] 10, 387-396 (1946). (Russian. English summary)

The author gives a method of determining the edge effect along those contours of the shell whose tangents do not coincide with the asymptotic lines of the middle surface. The integration of the system of equations of the shell theory is reduced, in several cases, to the integration of momentless theory. This paper is a sequel to the author's earlier paper [same journal 9, 463-478 (1945); these Rev. 7, 351]. *I. S. Sokolnikoff* (Los Angeles, Calif.)

Source: Mathematical Reviews, Vol 8, No. 4

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

GOL'DENVEYZER, A. L. Dr. Physicomath Sci.

Dissertation: "Qualitative Investigation of the Equations of the Theory of Thin Shells and Certain Methods of Their Integration." Inst. of Mechanics, Acad. Sci. USSR, 25 Feb 47.

SO: Vechernyaya Moskva, Feb, 1947 (Project #17836)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

GOL'DENVEYSER, A.L.

Goldenweiser, A. L. Momentless theory of shells whose middle surface is of a curve of the second order. Appl. Math. Mech. [Akad. Nauk SSSR. Prikl. Mat. Mech.] 11, 285-290 (1947). (Russian. English summary)

[A more accurate translation of the Russian title would omit the phrase "of a curve."] This note indicates that the solution of the problems of momentless shell theory for shells whose middle surfaces are quadrics is reducible, by a suitable change of dependent and independent variables, to the integration of Poisson's or wave equations.

I. S. Sokolnikoff (Los Angeles, Calif.).

Source: Mathematical Reviews, 1948, Vol 9, No. 2

GOLDENVEYSER, A. L.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

Goldenweiser, A. L. Approximate calculation of thin shells of zero Gauss curvature. Akad. Nauk SSSR. Prikl. Mat. Meh. 11, 409–422 (1947). (Russian. English summary)

The main object of this paper is a qualitative analysis of stressed states in thin elastic shells with developable middle surfaces. The paper also contains an outline of the methods of approximate calculation of stresses. The shell is covered by a net of lines of curvature α, β (the α-lines are of zero curvature) so that the first fundamental form for the surface is of the type $ds^2=d\alpha^2+B^2d\beta^2$. In this case Love's general equations of the shell theory are reducible to two differential equations for the stress functions t and m from which the forces, moments, and deformations can be computed by differentiation. These equations are:

$$\frac{\lambda^2}{B^2}\frac{\partial}{\partial\alpha}B^2\frac{\partial t}{\partial\alpha}-\frac{\lambda^2h^2}{3(1-\sigma^2)}N(m,\sigma)=0,$$

$$\frac{\lambda^2}{B^2}\frac{\partial}{\partial\alpha}B^2\frac{\partial m}{\partial\alpha}+\lambda^2N(t,-\sigma)=0,$$

where λ^2 and λ^2 are introduced to make the terms of these equations have the dimensions of t; for cylindrical shells $(\partial B/\partial\alpha=0)$,

$$N(F)=\frac{1}{B}\frac{\partial}{\partial\beta}\frac{B}{B}\frac{\partial}{\partial\beta}\frac{1}{B}\frac{\partial}{\partial\beta}\frac{1}{B}\frac{\partial F}{\partial\beta}+\frac{1}{BR}\frac{\partial}{\partial\beta}\frac{1}{B}\frac{\partial F}{\partial\beta},$$

R being the radius of curvature of the β-line; for noncylindrical shells $(\partial B/\partial\alpha\neq0)$ $N(F)$, in addition to the terms given above, contains the term

$$\frac{1}{B}\frac{\partial}{\partial\beta}\frac{B}{B}\left(\frac{\partial}{\partial\alpha}\frac{1}{B}\frac{\partial B}{\partial\alpha}\right)\frac{\partial F}{\partial\beta}.$$

For conical and cylindrical shells the system can be integrated approximately in the form of a series involving trigonometric and Bessel functions, provided certain restrictions on the lengths of the shells and on the generatrix angle are imposed.

Several results obtained in the author's two earlier papers [same journal 9, 463–478 (1945); 10, 387–396 (1946); these Rev. 7, 351; 8, 241], dealing with thin shells of zero Gaussian curvature which are so stressed that the state of stress can be decomposed into a momentless state and into a state produced by moments and boundary effects, appear as special cases in this more general treatment.

I. S. Sokolnikoff (Los Angeles, Calif.).

Source: Mathematical Reviews, 1948, Vol 9, No. 4

Smwt 8/94

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

GOL'DENVEYZER, A. L.

Gol'denveizer, A. L., and Lur'e, A. I. On the mathematical theory of the equilibrium of elastic shells. (Survey of the work published in the USSR.) Akad. Nauk SSSR. Prikl. Mat. Meh. 11, 565–592 (1947). (Russian)

This is a condensed survey of the research literature on the subject published in Russia during the past decade. Three distinct directions are discernible: (a) theoretical investigations based on the fundamental equations of the mathematical theory of elasticity, (b) work on stability and vibrations, (c) papers concerned with the engineering applications of the theory. This survey is concerned only with the first aspect. The development surveyed in this article falls into three categories: (a) formulation of the basic equations of the theory of thin shells, which extends the classical theory of Love with the aid of modern tools of differential geometry; (b) specialization of the general three-dimensional problem of the theory of elasticity to a two-dimensional one by introducing certain geometrical hypotheses and physical assumptions; papers in this category are concerned with the analysis of the nature of the simplifications and with the study of the magnitude of errors inherent in them; (c) integration of the equations formulated in category (a). This is accomplished by replacing the complete system of equations by special systems yielding the information about the "edge effect" and the behavior of membrane or momentless shells.

In addition to the account of the general investigations falling in these categories, the survey contains a résumé of several problems of integration of systems of equations associated with specific geometrical forms. These include spherical shells, conical shells and shells with vanishing Gaussian curvature. The survey concludes with a bibliography of 48 items. *I. S. Sokolnikoff* (Los Angeles, Calif.).

Source: Mathematical Reviews, Vol / No. /

Sow

GOL'DENVEYZER, A. L.

"The Influence of Border Fastening on the State of Stress of Thin Shells," Trudy of the Central Aero-Hydrodynamic Institute (ZAGI) 1948, No. 669

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

USSR/Engineering
Mechanics
Bibliography

Jan/Feb 49

"Review of V. V. Novozhilov's 'Theory of Thin Shells,'" A. L. Gol'denveyzer, 3 pp

"Priklad Matemat i Mekh" Vol XIII, No 1

Generally favorable review of subject book, which attempts to classify and clarify accumulated data on the theory of thin-walled shells.

[redacted]

39/49T43

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

PA 153T55

USSR/Engineering - Rods
Shells

Nov/Dec 49

"On the Theory of Thin-Walled Rods," A. L Gol'denveyzer, Moscow, 35 pp

"Prik Matemat i Mekh" Vol XIII, No 6 - p. 561-96

This work differs from others on thin-walled rods in that it does not make use of special hypotheses based on qualitative analysis of integrals of equations as found in the theory of shells. Purpose of its investigations is to determine approximately the basic stressed state in a rod span loaded by transverse load R and system of forces and moments T applied to terminal transverse section. It is

USSR/Engineering - Rods (Contd) Nov/Dec 49

assumed that terminal sections of the rod are fixed arbitrarily and longitudinal sides are free of bonds. Submitted 21 Jun 49.

153T55

GOL'DENVEYZER, A. L.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

[illegible], [illegible].

The mathematical theory of the equilibrium of [illegible] shells. (A review of papers published in the USSR). New York, [illegible] (American Mathematical Society. [illegible])

Bibliography: p. [illegible].

[illegible] ate [illegible]

[illegible]

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

USSR/Mathematics - Shells, Equilibrium of   Mar/Apr 51

"Applying the Solution of the Riemann-Hilbert Problem to Computation of Momentless Shells," A. L. Goldenveiser, Moscow

"Prik Matemat i Mekh" Vol XV, No 2, pp 149-166

Applied to 2d-order surfaces of pos curvature in cases where moments may be neglected. In this case tangential forces are computed by integrating eq of equil. Momentless shell is statistically detd only in definite boundary cases.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 378 - I

BOOK

Author: GOL'DENVEYZER, A. L. Call No.: QA935.G6

Full Title: THE THEORY OF ELASTIC THIN SHELLS

Transliterated Title: Teoriya uprugikh tonkikh obolochek

Publishing Data

Originating Agency: None

Publishing House: State Publishing House of Engineering and Theoretical Literature

Date: 1953 No. pp.: 544 No. of copies: 4,000

Editorial Staff

Editor: None Tech. Ed.: None

Editor-in-Chief: None Appraiser: None

Text Data

Coverage: The theory of shells as based on the assumption of the inalterability of the normal element is considered in this book. It is further assumed that the materials are isctropic and obey Hook's law generalized, and that the second powers of deformations, displacements, and angles of return are sufficiently small to be neglected. The author made an effort to present as completely as possible the many existing approximate methods of calculation of shells. The book is the result of many years of the author's research. It is divided into five parts, each part being a complete entity which may be studied separately.

sections; 11. External loads; 12. Equilibrium equations

Journal of the American Ceramic Society
Vol. 37 No. 4
Apr. 1, 1954
Cements, Limes, and Plastics

Autoclave method of making asbestos-cement shingles. T. M. Berkovich, I. L. Rabinov, and V. L. Gol'denveizer. *Tsement*, 19 [4] 19–23 (1953).—In the existing method of making asbestos-cement shingles, high-grade Portland cement is used as the bond. The shingles are steamed at 50° to 60°C. for 8 to 16 hr. and then hardened in storage for 7 to 10 days. An improvement of this method involves the addition of not less than 50% finely ground quartz sand to the cement and steaming in an autoclave at 8 atm. pressure for 8 hr. B.Z.K.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

GOL'DENVEYZER, A. L.

Gol'denveizer, A. L. On the calculation of shells with concentrated forces. Akad. Nauk SSSR. Prikl. Mat. Meh. 18, 181–186 (1954). (Russian)

There are two methods of calculating shells on concentrated forces. The first one starts with a distributed load acting in a small region which is allowed to shrink to a point, the load accordingly increasing infinitely at the same time. The second method consists of constructing a function satisfying the elasticity differential equations which has a certain defined singularity in the neighborhood of the point of application of the concentrated force. The author considers the second method only, which is mathematically very convenient, but which can be used only if the nature of the singularity is known beforehand. The author uses the following singularity: $r^2 \ln r$. *T. Leser.*

SUBJECT USSR/MATHEMATICS/Differential equations CARD 1/2 PG - 490
AUTHOR GOL'DENVEIZER A.L.
TITLE An improvement of the theory of the simple edge effect.
PERIODICAL Priklad.Mat.Mech. 20, 335-348 (1956)
reviewed 1/1957

Edge effects which arise in the near of a contour which nowhere touches the asymptotic lines of the medium surface of a shell, have been treated until now in first approximation only. In the case of axial symmetric shells only Lurje has proposed a method the exactness of which corresponds to that one of the theory of shells. In the general case the complex unknown function

$$W = \sqrt{\frac{h^2}{3(1-\sigma^2)}}\; 2\,E\,h\,w + i\,c$$

(h - half thickness of the shell, σ-coefficient of Poisson, E - Young modulus, w - normal flexure of the shell, c - tension function) is obtained from the differential equation

$$L(W) + \frac{h}{\lambda}\,\frac{1}{\sqrt{3(1-\sigma^2)}}\,N(W) = 0$$

λ - characteristic radius of curvature of the shell

by the set up

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

AUTHOR: [illegible]

TITLE: [illegible]

PERIODICAL: [illegible]

ABSTRACT: [illegible] paper on the [illegible] author brings in the [illegible] final [illegible] equations for the [illegible] usual tensor symbolism [illegible] the paper. It is supposed that the [illegible] arbitrary coordinate [illegible] by the author are of [illegible] under what circumstances [illegible] The admis[illegible] for the derivatives is in[illegible] and the possible errors are estimated [illegible] fundamental equa[illegible] fundamental equations can be [illegible] these [illegible] are [illegible]

Card 1/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

[illegible] equations [illegible] theory of [illegible] [illegible]
and [illegible]

[illegible]
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[illegible]
[illegible]
[illegible] tions [illegible]
[illegible] the author mentions three possible
[illegible] for [illegible] calculation of the state of
[illegible] of [illegible] without [illegible]
[illegible] references.

[illegible]: [illegible] 1[illegible], [illegible]

[illegible]: Library [illegible]

1. Shells-Theory

[illegible]

FUKS, Boris Abramovich, prof.; BAKHSHIYAN, F.A., prof.; ANDRIYEVSKIY, F.P., dotsent; MIROSHKOV, R.K., dotsent; NAGAYEVA, V.M., dotsent; SOBOLEV, N.A., dotsent; SOKOLOV, A.M., dotsent; SHAPIRO, Z.Ya., dotsent; SHUSHARA, G.N., dotsent; KAPLAN, I.B., starshiy prepodavatel'; POLOZKOV, A.P., starshiy prepodavatel'; POLOZKOV, D.P., starshiy prepodavatel'; TOPAZOV, N.G., starshiy prepodavatel'; SHCHERBAKOV, S.S., starshiy prepodavatel'; Prinimali uchastiye: GOL'DENVEYZER, A.L., prof.; BARANENKOV, G.S., dotsent; BERMAN, Ya.R., dotsent; LUNTS, G.L., dotsent; SHESTAKOV, A.A., dotsent; GMURMAN, V.Ye., starshiy prepodavatel'; Rozental', M.I., assistent; SOKOLOVA, L.A., assistent. ROZANOVA, G.K., red.izd-va; KUZ'MINA, N.S., tekhn.red. (Continued on next card)

FUKS, Boris Abramovich--(continued) Card 2.

[Higher mathematics; methodological instructions and control assignments for the students of correspondence technical schools of university level] Vysshaia matematika; metodicheskie ukazaniia i kontrol'nye zadaniia dlia studentov zaochnykh vysshikh tekhnicheskikh uchebnykh zavedenii. Izd.9. Pod red. B.A.Fuksa. Moskva, Gos.izd-vo "Sovetskaia nauka," 1958. 179 p. (MIRA 12:9)

1. Russia (1923- U.S.S.R.) Ministerstvo vysshego obrazovaniya. Metodicheskoye upravleniye.

(Mathematics--Study and teaching)

SOV/24-58-4-19/39

AUTHOR. Gol'denveyzer, A.L. (Moscow)

TITLE: On Reissner's Theory of the Bending of Plates (O teorii izgiba plastinok Rayssnera)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 4, pp 102 - 109 (USSR)

ABSTRACT: The author discusses Reissner's paper (Ref 1) in which a thin plate of constant thickness is subjected to normal forces of variable intensity at the upper and lower boundaries of the plate. Body forces are assumed to be absent. Reissner's theory is described and its generalisation discussed. The following question is proposed: which has greater influence on the corrections introduced by the theory - the elastic phenomena at the boundary of the plate or those far from it? As an example an unloaded circular plate is considered at whose boundary are applied a bending moment, a transverse force and a twisting moment. It is shown that Reissner's theory gives corrections to the constants A_1 and A_2 corresponding to the classical theory and a new constant A_3 is defined. The stressed state (called by Reissner the boundary effect) associated

Card1/2

SOV/24-58-4-19/39

On Reissner's Theory of the Bending of Plates

with this constant has a strongly local character. In a special case of the above example, the author finds that Reissner's theory can give wrong corrections to the classical theory. This is because the theory is based on a hypothesis concerning phenomena far from the boundary of the plate, while phenomena near the boundary play an important part. In conclusion, Vlasov's theory (Ref 4) is discussed. It gives the same law for the distribution of the bending stresses. The two theories are compared inconclusively. There are 4 references, 2 of which are Soviet and 2 English.

SUBMITTED: December 2, 1957

Card 2/2

SOV/24-58-10-33/34

AUTHOR: Panovko, Ya. G.

TITLE: A Conference on Elastic Vibrations at the Institute of Mechanical Engineering of the Academy of Sciences of the Latvian SSR (Soveshchaniye po voprosam uprugikh kolebaniy v Institute mashinovedeniya Akademii nauk Latviyskoy SSR)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, 1958, Nr 10, pp 158-159 (USSR)

ABSTRACT: This Conference took place on June 12-15, 1958, in Riga. Altogether over 70 people took part in the conference (apart from those normally based at Riga). Eleven papers were read: 1) "The effect of vibration on systems with dry friction", by I. I. Blekhman and G. Yu. Dzhanelidze (Leningrad), 2) Two papers on dynamic problems in the nonlinear theory of plates and the shells by V. V. Bolotin and A. S. Vol'mir (Moscow), 3) "A qualitative study of the form and frequencies of natural vibrations of thin elastic shells", by A. L. Gol'denveyzer (Moscow). 4) "Some problems in connection with vibrations of elastic rods in the case of large displacements", by Ya. G. Shkenev (Moscow),

Card 1/2

5) "Coupled vibrations of vanes and discs in turbines" and "Passage through resonance of a linear system with non-linearly varying frequency" by A. P. Filippov (Khar'kov), 6) "Some problems in the dynamics of an ideally elastic stretched thread" by V. A. Svetlitskiy (Moscow), 7) "On the similarity of dynamic processes in solid bodies", by A. G. Nazarov (Yerevan), 8) "The problem of constructional hysteresis", by Ya. G. Panovko (Riga) 9) "Constructional hysteresis in resin-metallic shock absorbers", by G. I. Strigunov (Riga). The Conference was closed with a speech by A. A. Blagonravov-Borodich (Moscow).

Card 2/2

GOL'DENVEYZER, A.L. (Moskva)

Asymptotic integration of partial differential equations with parameter dependent boundary conditions. Prikl.mat. i mekh. 22 no.5:657-672 S-O '58. (MIRA 11:11)

(Differential equations, Partial)

16(1) PHASE I BOOK EXPLOITATION SOV 2660

Vsesoyuznyy matematicheskiy s"yezd. 3rd, Moscow, 1956

Trudy. t. 4: Kratkoye soderzhaniye sektsionnykh dokladov. Doklady inostrannykh uchenykh (Transactions of the 3rd All-Union Mathematical Conference in Moscow. Vol. 4: Summary of Sectional Reports. Reports of Foreign Scientists) Moscow, Izd-vo AN SSSR, [illegible] 247 p. 2,200 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Matematicheskiy institut.

Tech. Ed.: G.N. Shevchenko; Editorial Board: A.A. Abramov, V.G. Boltyanskiy, A.M. Vasil'yev, B.V. Medvedev, A.D. Myshkis, S.M. Nikol'skiy (Resp. Ed.), A.G. Postnikov, Yu. V. Prokhorov, K.A. Rybnikov, P. L. Ul'yanov, V.A. Uspenskiy, N.G. Chetayev, G. Ye. Shilov, and A.I. Shirshov.

PURPOSE: This book is intended for mathematicians and physicists.

COVERAGE: The book is Volume IV of the Transactions of the Third All-Union Mathematical Conference, held in June and July 1956. The book is divided into two main parts. The first part contains summaries of the papers presented by Soviet scientists at the Conference that were not included in the first two volumes. The second part contains the text of reports submitted to the editor by non-Soviet scientists. In those cases when the non-Soviet scientist did not submit a copy of his paper to the editor, the title of the paper is cited and, if the paper was printed in a previous volume, reference is made to the appropriate volume. The papers, both Soviet and non-Soviet, cover various topics in number theory, algebra, differential and integral equations, function theory, functional analysis, probability theory, topology, mathematical problems of mechanics and physics, computational mathematics, mathematical logic and the foundations of mathematics, and the history of mathematics.

GOL'DENVEYZER, A.L. (Moskva)

Asymptotic integration of linear differential equations with partial derivatives having a small main part. Prikl. mat. i mekh. 23 no.1: 35-37 Ja-F '59. (MIRA 12:2)
(Differential equations, Partial)

Gol'denveyzer, A. L.

Report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb 60.

68. M. S. Ganeeva, Kh. M. Mushtari, R. G. Surkin (Kazan): On a method of solving problems of the bending theory of shallow shells with the use of electronic digital computers.

69. G. T. Gasanov, S. G. Gurbanov (Baku): Solution of unsteady problems of hydrodynamics of viscous and visco-plastic fluids.

70. A. V. Gemmerling (Moscow): An approximate stability analysis of frames in the elastic-plastic range.

71. G. A. Geniev (Moscow): Some problems concerning the plane flow of compressible plastic media.

72. G. P. Geordzhian (Erevan): On a problem of elastic-plastic torsion of an anisotropic shaft.

73. I. G. Gerasimov (Moscow): A dynamic problem for a conical shell.

74. M. V. Gzovskii (Moscow): Tectonophysics -- a new domain of application of mechanics to geological problems.

75. M. V. Gzovskii, D. Osipova (Moscow): Simulating of processes of plastic deformation and rupture of solids with great variations of time and size.

76. V. G. Gmoshinskii (Moscow): Development of a theory of pressure in rocks with the use of the methods of continuum mechanics.

77. I. I. Golberg (Moscow): Some generalisations of the basic equations of visco-elasticity.

78. I. I. Golberg (Moscow): The propagation of longitudinal waves in a visco-elastic rod.

79. A. M. Goldberg, V. G. Kurchain (Leningrad): Theoretical and experimental methods of design of the locks of the Stalingrad hydroelectric power plant.

80. I. I. Goldenblat (Moscow): A generalized theory of plastic flow.

81. I. I. Goldenblat (Moscow): The theory of finite deformations of anisotropic elastic media.

82. I. I. Goldenblat, N. A. Nikolaenko (Moscow): A general creep theory of shells.

83. A. L. Goldenveizer (Moscow): Development of the theory of thin elastic shells.

84. A. L. Goldenveizer (Moscow): Asymptotic integration of the equations of the theory of thin elastic plates.

85. M. I. Gorbunov-Posadov (Moscow): Determination of the elastic core boundary in a sand foundation, which approaches failure under the pressure of a rigid footing.

86. A. Ya. Gorgidze (Tbilisi): On secondary effects in torsion and bending of nearly prismatic bars.

87. L. V. Gorelik (Leningrad): On filtration force and viscous friction in water-saturated sand under dynamical conditions.

88. O. A. Goroshko, G. N. Savin (Kiev): Contribution to the dynamics of inelastic one-dimensional continua of variable length.

89. A. S. Grigorjev (Moscow): On elastic-plastic deformation of non-homogeneous plates and disks.

90. A. S. Grigorjev (Moscow): Equilibrium of membrane shells of revolution for large displacements and strains.

91. G. S. Grigorian (Erevan): Creep design of thin orthotropic sandwich shells.

92. S. S. Grigorian (Moscow): The general equations of soil dynamics and some particular solutions.

93. D. V. Grilitskii (Lvov): Torsion of an elastic layer.

94. A. N. Grubin (Leningrad): Stress concentration in notched tension strips under large creep deformations.

95. V. A. Gubenko, V. I. Mossakovskii (Dnepropetrovsk): The pressure of an annular die on an elastic half space.

96. I. G. Gudushauri (Tbilisi): Effect of shear stresses in the design of foundation strips of arbitrary rigidity under arbitrary loads.

97. S. O. Gulkanian (Erevan): The bending of a hollow prismatic rod with a rectangular hole.

98. A. N. Guzhin (Moscow): The limit equilibrium of an elastic-plastic disc that is compressed between rough rigid plates.

99. S. G. Gutman (Leningrad): A plane multiply-connected region subjected to a conservative body force and non-uniform heating.

100. S. G. Gutman (Leningrad): The equilibrium of a hollow cone under its own weight and hydrostatic pressure on one of its surfaces when the axis of the cone has an arbitrary orientation.

101. V. M. Darevskii, F. I. Kshnyakin (Moscow): Buckling of cylindrical cantilever shell with ring-stiffened edge under internal pressure.

GOLDENVEYSER, A. L. (Acad. Sci. USSR)

"The geomatrical criterion of the momentlessness of the state of stress of a thin elastic shell."

Report presented at the 10th International Congress of Applied Mechanics, (ICSU) Stresa, Italy, 31 August - 7 Sep 1960.

In the author's absence the paper was presented by Oniashvili. Momentlessness means that nearly everywhere in the shell (except in zones of edge effects), the bending stresses are not significant. Quantitatively, this can be defined by the relatives magnitude of the membrane strain energy W_m and the bending strain energy W_b. Let the characteristic of the middle surface K be defined by the equation.

[illegible]

37501
S/044/62/000/004/040/099
C111/C333

AUTHOR: Gol'denveyzer, A. L.

TITLE: The asymptotic integration of differential equations with variable small main part and oscillating boundary conditions

PERIODICAL: Referativnyy zhurnal, Matematika, no. 4, 1962, 45, abstract [illegible] ("Tr. Vses. soveshchaniya po differentsial'nym uravneniyam, 1958". Yerevan, AN Arm SSR, 1960, 75-82)

TEXT: The author generalizes results which he obtained for the solution of some problems of the theory of thin elastic shells. The equation

$$\varepsilon N(\varphi) + L(\varphi) = 0 \qquad (1)$$

is considered, where $\varepsilon > 0$ is a small parameter, L and N linear differential operators with the orders l and n, l < n, and two independent variables α and β. It is assumed that the coefficients of L and N are sufficiently smooth and that α and β form a coordinate system similar to the polar system, i. e. the curve $\alpha = \alpha_0$ represents the boundary of the finite simply connected domain

Card 1/3

S/0[illegible]/61/000/00[illegible]/040/0[illegible]9
C111, C333

The asymptotic integration of ...

[illegible] x_0, [illegible].

Let k be a large parameter: $\varepsilon = k^{-t}$, where t is a rational positive number which is [illegible] exponent of variability. The author gives the asymptotic behavior of the solution of equation (1) with quickly oscillating boundary conditions for the Dirichlet and the Cauchy problem (the latter one in the half-neighborhood $x < x_0$) with conditions of the form

$$\left.\frac{[illegible]}{[illegible]}\right|_{x = x_0} = k [illegible]_0^{(n)}(\cdot)\, e^{ik[illegible](\cdot)}$$

where $[illegible]^{(n)}(\cdot)$ is [illegible] complex, [illegible] a real function and $[illegible]'(\cdot) \neq 0$. In dependence on the numbers t and $\frac{1}{n-1}$ the author considers three cases. The solution is sought in the complex domain. There are many [illegible]. Another method for solving

Card 2/3

S/044/62/000/004/040/099
C111/C333

The asymptotic integration of ...

Similar problems are due to M. I. Vishik and L. A. Lyusternik (RZhMat, 1961, 7B204).

[Abstracter's note: Complete translation.]

Card 3/3

MUSHTARI, Kh.M., red.; ALUMYAE, N.A., red.; BOLOTIN, V.V., red.; VOL'MIR, A.S., red.; GANIYEV, N.S., red.; GOL'DENVEYZER, A.L., red.; ISANBAYEVA, F.S., red.; KIL'CHEVSKIY, N.A., red.; KORNISHIN, M.S., red.; LUR'YE, A.I., red.; SAVIN, G.N., red.; SACHENKOV, A.V., red.; SVIRSKIY, I.V., red.; SURKIN, R.G., red.; FILIPPOV, A.P., red.; ALEKSAGIN, V.I., red.; SEMENOV, Yu.P., tekhn. red.

[Proceedings of the Conference on the Theory of Plates and Shells] Trudy Konferentsii po teorii plastin i obolochek, Kazan', 1960. Kazan', Akad. nauk SSSR, Kazanskii filial, 1960. 426 p. (MIRA 15:7)

1. Konferentsiya po teorii plastin i obolochek, Kazan', 1960.
2. Moskovskiy energeticheskiy institut (for Bolotin). 3. Kazanskiy khimiko-tekhnologicheskiy institut (for Ganiyev).
4. Institut mekhaniki Akademii nauk USSR (for Kil'chevskiy).
5. Kazanskiy gosudarstvennyy universitet (for Sachenkov).
6. Kazanskiy filial Akademii nauk SSSR (for Svirskiy).

(Elastic plates and shells)

83225

S/042/60/015/005/001/005
C111/C222

16.7300

AUTHOR: Gol'denveyzer, A.L.

TITLE: Some Mathematical Problems in the Linear Theory of Elastic Thin Shells

PERIODICAL: Uspekhi matematicheskikh nauk, 1960, Vol.15, No.5, pp.3-75.

TEXT: The author has the aim to turn the attention of the mathematicians to the difficulties of the theory of shells and gives a representation of the corresponding mathematical problems. The contents of the paper is partially taken from the author's book (Ref.1) and partially from his numerous publications (Ref.6,9,11,12,14,23,26).
Contents: Introduction; chapter I: Asymptotic methods for the integration of partial differential equations; chapter II: Binding by boundary conditions; chapter III: Eigenvalue problems of the theory of shells; chapter IV: Theory of shells free of moments and its connection with the theory of infinitely small deformations; chapter V: Asymptotic integration of the differential equations of the theory of shells subject to moments; chapter VI: Influence of the conditions of clamping to

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83225
S/042/60/015/005/001/005
C111/C222

Some Mathematical Problems in the Linear Theory of Elastic Thin Shells

the state of stress of the shell.
The author mentions I. N. Vekua. There are 26 references: 23 Soviet, 2 American and 1 English.

SUBMITTED: November 5, 1959

Card 2/2

PHASE I BOOK EXPLOITATION SOV/6201

Vsesoyuznyy s"yezd po teoreticheskoy i prikladnoy mekhanike. 1st, Moscow, 1960.

Trudy Vsesoyuznogo s"yezda po teoreticheskoy i prikladnoy mekhanike, 27 yanvarya -- 3 fevralya 1960 g. Obzornyye doklady (Transactions of the All-Union Congress on Theoretical and Applied Mechanics, 27 January to 3 February 1960. Summary Reports). Moscow, Izd-vo AN SSSR, 1962. 467 p. 3000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Natsional'nyy komitet SSSR po teoreticheskoy i prikladnoy mekhanike.

Editorial Board: L. I. Sedov, Chairman; V. V. Sokolovskiy, Deputy Chairman; G. S. Shapiro, Scientific Secretary; G. Yu. Dzhanelidze, S. V. Kalinin, L. G. Loytsyanskiy, A. I. Lur'ye, G. K. Mikhaylov, G. I. Petrov, and V. V. Rumyantsev; Resp. Ed.: L. I. Sedov; Ed. of Publishing House: A. G. Chakhirev; Tech. Ed.: R. A. Zamarayeva.

Card 1/ 6

PURPOSE: This book is intended for scientific and engineering personnel who are interested in recent work in theoretical and applied mechanics.

COVERAGE: The articles included in these transactions are arranged by general subject matter under the following heads: general and applied mechanics (5 papers), fluid mechanics (10 papers), and the mechanics of rigid bodies (8 papers). Besides the organizational personnel of the congress, no personalities are mentioned. Six of the papers in the present collection have no references; the remaining 17 contain approximately 1400 references in Russian, Ukrainian, English, German, Czechoslovak, Rumanian, French, Italian, and Dutch.

TABLE OF CONTENTS:

SECTION I. GENERAL AND APPLIED MECHANICS

SECTION III. MECHANICS OF RIGID BODIES

SAVIN, G.N., otv.red.; ABADULOV, A.A., red.; ALUMYAE, N.A., red.; AMBARTSUMYAN, S.A., red.; AMIRO, I.Ya., red.; BOLOTIN, V.V., red.; VOL'MIR, A.S., red.; GOL'DENVEYZER, A.L., red.; GRIGOLYUK, E.I., red.; KAN, S.N., red.; KARMISHIN, A.V., red.; KIL'CHEVSKIY, N.A., red.; KISELEV, V.A., red.; KOVALENKO, A.D., red.; MUSHTARI, Kh.M., red.; NOVOZHILOV, V.V., red.; UMANSKIY, A.A., red.; FILIPPOV, A.P., red.; LISOVETS, A.M., tekhn. red.

[Proceedings of the Second All-Union Conference on the Theory of Plates and Shells] Trudy Vsesoiuznoi konferentsii po teorii plastin i obolochek. 2d, Lvov, 1961. Kiev, Izd-vo AN Ukr.SSR, 1962. 581 p. (MIRA 15:12)

1. Vsesoyuznaya konferentsiya po teorii plastin i obolochek. 2, Lvov, 1961.
(Elastic plates and shells)

S/040/61/025/004/012/021
D274/D306

24 4200   1327 [illegible] 2601 2807

AUTHOR: Gol'denveyzer, A.L. (Moscow)

TITLE: A[illegible]otic propert[illegible]s of eigenvalues in the elastic-shell [illegible]

PERIODICAL: [illegible] [illegible] [illegible], v. 2[illegible] no. 4, 196[illegible], 72[illegible]

TEXT: Linear [illegible] are [illegible] of free oscillations and the stability of thin elastic shells, special attention being given to asymptotic properties of eigenv[illegible] as a function of the density and configuration [illegible] the [illegible] lines of the eigenfunctions. It was shown by the author (R[illegible] A.L. Gol'denveyzer, Teoriya uprugikh tonkikh obolochek (Theory of thin elastic shells), GITTL, 1953) that in many cases [illegible] approximate description of the stress-strain state of elastic [illegible] [illegible] equations:

$$L(C) - a^2 R^{2}[illegible] [illegible] = 0 \qquad a^2 = \frac{h^2}{[illegible](1 - [illegible]^2)} \qquad (1.1)$$

$$L([illegible]) [illegible] (C) = 0$$

where C is the [illegible], w [illegible] normal [illegible], R - a

Card 1/7

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

S/040/61/025/004/012/021
D274/D306

asymptotic [illegible]

$$\frac{[illegible]}{2Eh} [illegible]^2 = k^{[illegible]} \frac{1}{v} [illegible] \frac{k^2}{3(1 [illegible] 2)} n [illegible] \quad (4.1)$$

k is a parameter [illegible] $\left(\frac{h}{R}\right)$ [illegible] (4.2)

1, n and v' are [illegible]

$k^2 \rho 1$ = [illegible] $d\beta$

$k^{[illegible]}$ [illegible] $d\beta$ (4.3)

$k^4 \nu$ = $\iint$ [illegible] $d\alpha \, d\beta$ [illegible] $d\beta$

(ρ has yet to be determined); for q_0 one obtains:

$$q_0 = k^{2 [illegible]} \frac{1}{v} \left(1 + [illegible] \frac{k^2}{3(1 [illegible] 2)} n \right) \quad (4.4)$$

where $k^{4} \varkappa_v$ = $\iint$ [illegible] $d\beta$ (4.5)

($\varkappa$ has yet to be determined), [illegible] (4.1) are given by

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$$c = c_{*} \left[r_1 \cos k \, (f_1 - f_2) + r_2 \cos k \, (f_1 + f_2) \right] \qquad (5.1)$$
$$w = w_{*} \left[\cos k \, (f_1 - f_2) + \cos k \, (f_1 + f_2) \right]$$

where c_{*}, w_{*}, f_1, f_2, r_1, r_2 are functions of α and β which can be chosen. It is required that w_{*} and c_{*} be non-negative. The stress-strain state D is considered, determined by (5.1) and (2.1). The density of the nodal lines of D increases with k, i.e. with [illegible] (for given h/R); the number [illegible] is termed the index variability. By appropriately choosing f_1 and f_2 it is possible that state D should have two (or one) systems of nodal lines which belong to two (or one) pre-assigned families of curves, by the appropriate choice of t it is possible (with fixed f_1 and f_2) to increase or to reduce the density of nodal lines. It is postulated that the functions f_1, f_2, w_{*}, c_{*}, r_1, r_2 can be chosen in such a way that their variability should not be very large and that c and w should be sufficiently close to a solution of Eq. (1.1) (2.1); with such a choice of these functions, formulas (4.1) and (4.4) give sufficiently exact values of ω^2 and c_0. This postulate is verified for all cases, except when the middle

S/04[illegible]/[illegible]1/0[illegible]/004/012/021
D[illegible]

Asymptotic [illegible]

surface of the shell has [illegible] curvature. Now the problem consists in [illegible] asymptotic ([illegible]) expressions for the integrals (4.[illegible]), [illegible] the form (4,1). [illegible]

$$\iint [illegible] \, d\alpha \, d\beta \neq 0 \qquad (10,3)$$

where L_0 is [illegible]

$$L_0 = [illegible] \frac{1}{R_2} [illegible] - [illegible] \frac{1}{R_1} [illegible]$$

this condition may [illegible] at all points of the region under investigation

$$L_0 [illegible] = 0 \qquad (10,4)$$

It follows that in (4,5) the quantities [illegible] will remain finite when [illegible], if [illegible] is [illegible] = 2 if condition (10,3) is satisfied, and [illegible] 0 if (10.4) holds. If both relations do not hold [illegible] = 1. For a shell of positive [illegible] (10,4) always holds. For zero curvature, (10,3) [illegible] strain state D [illegible] lines of

Card 5/8

the [illegible] is [illegible] considered. Further, the asymptotic [illegible] are discussed (on the [illegible]), [illegible] is positive, hence [illegible] characteristic val[illegible]

(1[illegible])

T_o depends on [illegible] can assume only one of the three values: 2,1,0; (hence [illegible] can have only three values too). A typical (for shell theory) [illegible] eigenvalues increase with increasing number of nodal lines; this takes place only up to a certain point - the [illegible] characteristic value T_o; thereupon the regular [illegible] is re-established: increasing eigenvalues with an increasing number of nodal lines. In stability problems, the least value of the critical load is important. It is found, for which configuration of nodal lines, loss of stability occurs. For zero curvature, [illegible] may arise. In the first case, stability may be lost for [illegible] nodal lines which coincide with rectilinear [illegible]; in the second case stability is not

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

24.4200

S/040/62/026/004/004/013
D409/D301

AUTHOR: Gol'denveyzer, A.L. (Moscow)

TITLE: Construction of an approximate theory of bending of plates by the method of asymptotic integration of the equations of elasticity theory

PERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 4, 1962, 668 - 686

TEXT: The possibility of rendering more exact the classical theory of bending of plates is considered. The bending problem is formulated as a three-dimensional problem of elasticity theory which is solved by the iteration method; thereby it is assumed that one of the dimensions is small as compared to the other two. The stressed state of the plate is sought in the form of a sum of a slowly-decreasing (with distance from the plate edge) stressed state which is constructed by means of the principal iteration process, and of fast-decreasing stressed states, constructed by means of auxiliary iteration processes. Such an approach is often used in the asymptotic integration of differential equations and corresponds to the

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

tions. The auxiliary iteration process is constructed in two different ways. In the first, the construction of the solution amounts to the integration of an harmonic equation, whereas in the second, the solution involves the integration of a biharmonic equation. Five types of boundary conditions are considered, and the corresponding equations are set up. These equations are used to determine the sought-for functions (the biharmonic function F(x, y), the harmonic function ψ(ξ, ζ), and the biharmonic function F(ξ, ζ)). The function ψ(x, y) can be expressed in terms of F(x, y). The main consequence of the above results is as follows: the stressed state has 3 components (the principal stressed state, the stressed state of edge twisting, and the stressed state of plane edge deformation). 10 The principal stressed state corresponds to the principal iteration process, whereas the other stressed states correspond to the auxiliary processes. With such an approach, classical theory can be considered as an approximate method, based on the principal iteration process only, for which only the first approximation is constructed. The fundamental difference between the proposed method and classical theory, consists in introducing the auxiliary iteration processes, i.e. the processes constructed by integration of diffe-

S/040/62/026/004/004/015
D409/D301

Construction of an approximate ...

rential equations which contain ζ as an independent variable.

SUBMITTED: April 5, 1962

/E

L 12946-63 EWP(r)/EWT(m)/BDS AFFTC

ACCESSION NR: AP3004108 S/0040/63/027/004/0593/0608

50

AUTHOR: Gol'denveyzer, A. L. (Moscow)

[redacted]

TITLE: Development of an approximate shell theory by the asymptotic integration of the elasticity-theory equations

SOURCE: Prikladnaya matematika i mekhanika, v. 27, no. 4, 1963, 593-608

TOPIC TAGS: approximate shell theory, asymptotic integration, shell theory

ABSTRACT: An asymptotic method of integration of differential equations of the elasticity theory is proposed, by means of which an approximate theory of shells can be established with a desired degree of accuracy in a way analogous to that used earlier by the author to develop an approximate theory of flexure of plates (Postroyeniye priblizhennoy teori izgiba plastinki metodom asimptoticheskogo integrirovaniya uravneniy teorii uprugosti, PMM, 1962, v. 26, no. 4). This is closely associated with the method of asymptotic integration of differential equations of the theory of shells discussed in the author's monograph Teoriya uprugikh tonkikh obolochek, Gostekhizdat, 1953. Tensor analysis is applied in the representation and solution of the initial system of differential equations

L 12946-63
ACCESSION NR: AP3004108

(equilibrium equations, symmetry conditions, and elasticity relationships) for determining displacements and stresses. Iterative processes are formulated for determining the states of stress which are, in the zero approximation, equivalent to the membrane-stress state, the pure flexural-stress state, and the states with large indexes of variation, as well as the iterative processes corresponding to the states of torsion and of plane strain at the edges. Through the combination of these iterative processes, the boundary conditions of the three-dimensional elasticity theory can be satisfied with an arbitrary degree of accuracy. The physical interpretation of the equations of the iterative processes is given. Certain conditions ensuring the asymptotic convergence of these iterative processes and thus determining the region of application of results obtained are briefly discussed. Orig. art. has: 62 formulas.

ASSOCIATION: none

SUBMITTED: 15Jan63 DATE ACQ: 15Aug63 ENCL: 00

SUB CODE: AP NO REF SOV: 007 OTHER: 008

Card 2/2

GOL'DENVEYZER, A.L. (Moscow):

"Asymptotic methods of analysis of the spectrum of free vibration frequencies of shells".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

GOL'DENVEYZER, A. L.

"The principles of reducing three-dimensional problems of elasticity to two-dimensional problems of elasticity to two-dimensional problems of the theory of plates and shells."

report submitted for 11th Intl Cong of Theoretical & Applied Mechanics & General Assembly, Munich, 30 Aug-5 Sep 64.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6

L 41657-65 EWT(d)/EWT(m)/EWA(d)/EWP(w) EM
ACCESSION NR: AP5006263 S/0040/65/029/001/0141/0155

27
B

AUTHOR: Gol'denveyzer, A. L. (Moscow); Kolos, A. V. (Moscow)

TITLE: Contribution to the construction of the two-dimensional equations of the theory of thin elastic plates 26

SOURCE: Prikladnaya matematika i mekhanika, v. 29, no. 1, 1965, 141-155

TOPIC TAGS: elasticity theory 26, elastic shell, applied mathematics, mechanical stress, strain measurement, stress calculation

ABSTRACT: The authors discuss ways to construct an approximate theory governing the calculation of thin elastic plates without employing assumptions typified by Kirchhoff's hypothesis. Up to now the only method of solving this problem was the method based on the use of power series or series expansions in Legendre polynomials. In some recent papers such problems have been handled by asymptotic integration of the equations of elasticity theory. In the present work the authors discuss the features of these methods and derive equations to which the asymptotic method reduces in the problem of the general strain of thin plates whose mean surface is related to an arbitrary orthogonal system of curvilinear coordinates. Orig. art. has: 59 formulas.

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6

L 64122-65 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(k)/EWA(h)/EWP(v) WW/EM

ACCESSION NR: AP5021303 UR/0040/65/029/004/0701/0715

AUTHOR: Gol'denveyzer, A. L. (Moscow)

TITLE: On errors in the classical linear shell theory and on means of improving it

SOURCE: Prikladnaya matematika i mekhanika, v. 29, no. 4, 1965, 701-715

TOPIC TAGS: linear shell theory, improved classical shell theory, classical shell theory, asymptotic method, three dimensional elasticity equation

ABSTRACT: An asymptotic method of integrating the three-dimensional equations of the theory of elasticity is proposed for determining the stresses and displacements in closed shells in which the effect of support conditions is eliminated (for example, in a complete sphere). It is assumed that the curvatures of the middle surface of the shell change smoothly, that its reduced length is not too large, and that the stress distribution sought for can be formally constructed by means of the membrane theory under an arbitrary self-equilibrating

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6

L 64122-65

ACCESSION NR: AP5021303

system of stresses with components differentiable a sufficient number of times. The results obtained by this method are compared with data obtained by applying the classical (based on the Kirchhoff-Love hypotheses) theory of shells, and the effect of errors caused by assumptions made in its initial relationships on the final results is investigated. In order to compare both results, the final formulas obtained by the method proposed are expressed in terms of the classical shell theory. The error estimates given here take account of the index of variation t, and it is shown that these errors (which have in the classical theory an order of the nondimensional thickness h_*) can be essentially reduced (up to values of the order h_*^{2-2t}). The expressions for the elasticity relationships which must be used to achieve this improvement are derived. The comparison leads to the conclusion that a more exact classical shell theory can be proposed for the solution of the discussed problem in which the error (in the case when t = o) will be of the order t^2 in comparison with unity. The effect of the variations in the state of stress on the values of errors in the classical theory is also discussed. Orig. art has: 42 formulas. [VK]

ASSOCIATION: none

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6

L 64122-65

ACCESSION NR: AP5021303

SUBMITTED: 22Apr65 ENCL: 00 SUB CODE: AS

NO REF SOV: 006 OTHER: 002 ATD PRESS: 4090

dm

Card 3/3

L 20626-66 [illegible]

ACC NR: [illegible] [illegible]

AUTHOR: Gol'denveyzer, A. L. (Moscow)

ORG: none

TITLE: Qualitative analysis of free vibration of elastic thin shells

SOURCE: Prikladnaya matematika i mekhanika, v. 30, no. 1, 1966, 94-108

TOPIC TAGS: shell, thin shell, shell vibration, shell natural frequency, vibration mode

ABSTRACT: An asymptotic method of integrating dynamic equations associated with free-vibration problems of the classic linear theory of elastic thin shells is presented. Equations of equilibrium, elasticity, and strain-displacement relationships, containing the frequency and displacement parameters, are taken from the author's "Theory of elastic thin shells" and are used as initial equations in investigating the free vibration of an elastic thin shell, by a method which is a "dynamic" version of the asymptotic method developed by the author in the above mentioned book for solving the static problem. The principal attention is paid to vibrations associated with a large index of variation in the states of stress and strain. The problem is solved in a rough approximation; the possibility of refinements is discussed. The asymptotic properties of expressions for determining the frequencies and the associated states of stress are analyzed in relation to the order of the magnitude of the nondimensional thickness of the shell, and to the density

L 20606-66

ACC NR: AP6007581

and shape of nodal lines. The classification of free-vibration modes is established, simplified equations for determining them in the first approximation are derived, and qualitative analyses of their natural-frequency spectra are carried out. The characteristic features of the boundary conditions in problems not studied before are discussed only qualitatively. New concepts of "quasi-lateral" and "quasi-tangential" vibrations (characterized by the predominance of the lateral and tangential displacements, respectively) are introduced, as well as of the concepts their integrals, which are analogous to integrals with a large index of variation in the static problem where they describe the distributions of flexural and tangential stresses. Examples of examining the existence of certain modes of vibration, and the spectra of natural frequencies are given. Orig. art. has: 1 table and 38 formulas. [VK]

SUB CODE: 20/ SUBM DATE: 23Sep65/ ORIG REF: 006/ OTH REF: 002/ ATD PRESS: 4225

Card 2/2

[illegible], [illegible]

"Investigation of the Action of Sulfur Dioxide on Various Aqueous Solutions." Sum [illegible], Moscow Order of Lenin Chemicotechnological Inst imeni D. I. Mendeleyev

Dissertations presented for science and engineering degrees in Moscow during [illegible].

SO: [illegible]

GOL'DENTSVAYG, Ya.D.

Determination of carbon dioxide pressure in the blood in clinical practice. Lab.delo 5 no.2:17-24 Mr-Ap '59. (MIRA 12:5)

1. Iz kafedry propedevtiki vnutrennikh bolezney (zav. - dots. Z.A.Gorbunkova) Smolenskogo meditsinskogo instituta.
(BLOOD--ANALYSIS AND CHEMISTRY) (CARBON DIOXIDE)

ARKHANGEL'SKIY, Ye.V., kand.tekhn.nauk; GOL'DENTUL, B.A., inzh.

Improvement in methods of determining load on switching throat-tracks.
Vest.TSNII MPS 18 no.1:61-63 F '59. (MIRA 12:3)
(Poland--Railroads--Switching)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

KROPACHEV, N.G., inzh.; GOL'DER, E.L., inzh.

Operational accounting and analysis of production cost in steel foundries and rolling mills of the Kuznetsk Metallurgical Combine. Stal' 25 no.10:953-955 O '65. (MIRA 18:11)

1. Kuznetskiy metallurgicheskiy kombinat.

ACCESSION NR: AP4037174 S/0069/64/[illegible]

AUTHOR: Vaynshtok, V. V.; Kart[illegible]; Gol'[illegible], G. A.

TITLE: The structure of soaps [illegible] additions of [illegible]

SOURCE: Kolloidny*y zhurnal, [illegible], 690-697, [illegible]

TOPIC TAGS: soap oil dispersion [illegible], [illegible] electro[illegible], lithium stearate, lead stearate, aluminum stearate, eutectic mixture, [illegible] crystal, crystal, crystal aggregate, [illegible] lithium stearate [illegible] dispersed particle

ABSTRACT: The authors studied the crystallization of lithium stearate [illegible] other stearates, widely used in the manufacture of lubricating [illegible] dispersions), and conducted electron [illegible] soaps, their melts and the soap-oil [illegible] prepared [illegible] mental specimens were prepared [illegible] leum ether. The results are photograph[illegible] powdered soaps differed little in [illegible] structures depending upon the soap [illegible]

Card 1/3

ACCESSION NR: AP4037174

[illegible] composition. The lead stearate based greases showed [illegible] lead stearate lamellae with a low degree of [illegible] [illegible] and thickening ability of such [illegible] aluminum and lithium [illegible] formed distinctly shaped combined curves [illegible] Increase of aluminum soap concentration [illegible] and rheologic indicators. [illegible] X-ray studies of these stearates [illegible] sharp diffraction, with the [illegible] [illegible] distances and line intensity are [illegible] pronounced than those of the [illegible] [illegible] stearate on the structure [illegible] formation of joint dispersed particles [illegible] [illegible] tion of [illegible] structure at 30 [illegible] [illegible] particles [illegible] [illegible] was confirmed in the [illegible] of crystallization at room [illegible] neutral lead stearate combined [illegible] than

ACCESSION NR: AP4037174

20-30 mol.% concentration. Lithium, lead and aluminum stearates [illegible] separately from melts as eutectic [illegible]. Orig. art. has: [illegible]

ASSOCIATION: Moskovskiy institut neftekhimicheskoy i gazovoy pr[illegible] I. M. Gubkina (Moscow Institute of Petrochemical and Gas Industry)

SUBMITTED: 02Nov62 ENCL: [illegible]

SUB CODE: FP NO REF SOV: [illegible] OTHER: [illegible]

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610015-6

Some Results of the Application of Spectrographic Analysis to Non-Ferrous Light Alloys. G. Gol'der (*Izvest. Akad. Nauk S.S.S.R.*, 1940, Fiz 4, (1), 218–219). [In Russian.] A short account of the application of the spectroscope to the sorting of Duralumin (17S and 24S), Al-Mg, and Al-Si alloys. —N. A.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

GOL'DER, G. A. Cand. Technical Sci.

"Energy and Stability of Crystal Lattices." Sub 6 Mar 47, Moscow Aviation Technological Inst

Dissertations presented for degrees in science and engineering in Moscow in 1947

SO: Sum No. 457, 18 Apr 55

GOL'DER, G.A.; UMANSKIY, M.M.

Goniometric and X-ray analysis of crystals of 1,3,8-trinitronaphthalene. Zhur. Fiz.Khim. 25, 555-6 '51. (MLRA 4:5)
(CA 47 no.17:8457 '53)

1. L.Ya.Karpov Phys.-Chem. Inst., Moscow.

GOL'DER, G.A.

X-ray study of crystals of some nitro and halogen derivatives of benzene and naphthalene. G. A. Gol'der, G. S. Zhdanov, M. M. Umanskii, and V. P. Glushkova (L. Ya. Karpov Phys.-Chem. Inst., Moscow). *Zhur. Fiz. Khim.* 26, 1250-65(1952).—The 1,8-dichloronaphthalene crystallizes from hexane in the form of elongated transparent plates, m. 87°, d = 1.51. Each plate has a 110° angle between the edges of rhombic prisms c[001] and m[100]. The unit cell has a = 11.6, b = 10.6, c = 7.9kX, d.(x-ray) = 1.53; the space group $C_{2h}^5 = P2_1/C$, 4 mols. per cell. It was detd. that {$h0l$} is present only when $l = 2n$, and {$0k0$} when $k = 2n$. Colorless crystals of 2,6-dichloro-1-nitrobenzene (from cyclohexane) have a[100], b[010], c[001], k[101]. It crystallizes with 4 mols. in a monoclinic cell with a = 5.82, b = 9.33, c = 14.2kX, β = 91°, d. = 1.40, d.(x-ray) = 1.51, its space group $C_{2h}^2 = P2_1/m$ or $C_2^2 = P2_1$. Monoclinic crystals of 2,4,6-tribromo-1-nitrobenzene crystallize from chloroform. The unit cell has a = 9.3, b = 12.4, c = 9.8kX, β = 127°20', d. = 2.46, d.(x-ray) = 2.54, and contains 4 formula units. It was estd. that {hkl} is present only when $k + l = 2n$, {$h0l$} when $h = 2n$ and $l = 2n$, and the {$0k0$} is present only when $k = 2n$. The crystal has space group $C_{2h}^6 = A2_1/a$ or $C_s^4 = Aa$. The benzophenone crystals from hexane have well-defined facets of rhombic prisms: a[100], b[010], c[001], m[110], d[101], k[201], and rhombic dipyramid l[111]. Its unit cell has a = 8.0, b = 10.2, c = 12kX, d. (by flotation method) = 1.1, d.(x-ray) = 1.05; 4 mols. per cell with space group $D_2^4 = P2_12_12_1$. The {$h00$} is present when $h = 2n$; {$0k0$} when $k = 2n$; {$00l$} only when $l = 2n$. Rhombic crystals of 1,3,5-trinitrobenzene have the following dimensions of a unit cell: a = 12.8, b = 27.0, c = 9.8A., with 16 formula units in each. The space group $D_{2h}^{18} = P_{ca}$. The golden-colored needles of 1,3,6,8-tetranitronaphthalene (I) (from EtOH) gave complicated x-ray diffraction probably owing to "regular polysynthetic formation." X-ray study of these crystals at −110° eliminated the possibility of interferences due to thermal vibrations. Crystals obtained from other solvents (e.g. AmOAc, ligroin, AcOH) gave similar interferences in x-ray diagrams. Crystn. from the mixts. of acetone with benzene or with toluene led to formation of new compds., which were very unstable in the air. By choosing planes without diffuse spots these investigators were able to show that the unit cell of I has a = 26.3, b = 7.75, c = 5.54kX, and when d. = 1.64 there are 4 mols. in a cell. For such a cell the {$h0l$} was estd. to be present only at $h = 2n$, {$0kl$} when $k + l = 2n$. On these bases the space group can be assigned: $D_{2h}^{16} = Pnam$ or $C_{2v}^9 = Pna2$. The x-ray study of 2,4,6-trinitrotoluene (II), with interferences analogous to I, is in disagreement with E. Hertel's expts. (*C.A.* 27, 5223). By choosing only well-defined defraction patterns it was possible to det. that the unit cell of II has 4 mols. with a = 20.2, b = 6.2, c = 7.7 kX, and the space group $C_{2h}^2 = P_{2_1}/m$ or $C_2^2 = 2_1$. It is concluded that in II, as in I, no true monoclinic crystals are formed.

Anatole P. Kotlobv

10

4/15/54

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6

GOL'DER, G.A.

7

The crystal structure of trichlorobenzonitrile. G. A. Gol'der, G. S. Zhdanov, and M. M. Umanskii (Karpov Phys.-Chem. Inst., Moscow). *Zhur. Fiz. Khim.* 26, 1434-7(1952); cf. *C.A.* 46, 6078.—The mol. structure of 2,4,6-trichlorobenzonitrile was detd. by Fourier analysis. It is monoclinic; the space group is C_{2h}^5-$P2_1/c$. The unit cell has the dimensions $a = 4.10$, $b = 10.92$, $c = 11.81$ kX, and $\beta = 91°30'$; and contains 4 mols. The plane in which the mols. lie forms a 31° angle with the (100) plane of the crystal. The line through C_1 and C_4 in the ring forms a 54°30' angle with the (010) direction. The bond distances C_1-C (nitrile), C_1-C_2, C_2-C_3, C_3-C_4, C_2-Cl, C_4-Cl, and N-C (nitrile) are 1.47, 1.39, 1.41, 1.38, 1.70, 1.71, and 1.16 kX, resp. The C_1=C_2-Cl angle is distorted about 2-3°.

J. W. Loweberg, Jr.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

GOL'DER, G. A.

USSR/Physics - Dislocations

Feb 52

"Translation of A. H. Cottrell's 'Theory of Dislocations in Crystalline Lattice,'" by G. A. Gol'der

"Uspekh Fiz Nauk" Vol XLVI, No 2, pp 179-230

Russian translation of English-language article, which appeared in "Progress in Metal Phys," edited by B. Chalmer, 1949, p 77. Translation made under editorship of Prof G. S. Zhdanov. Editor discusses differences in the following tech terms that are otherwise synonyms: "Zatsepleniye" (meshing), "dislokatsiya" (dislocation), "smeshcheniye" (shift), "stsepleniye" (gripping, cohesion).

210T100

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

Röntgenographic determination of structure of picryl chloride. G. A. Gol'der, G. S. Zhdanov, and M. M. Umanskii. [illegible] 92, [illegible] (1953); cf. Kitaigorodskii, C.A. 43, [illegible].—The unit cell of picryl chloride (I) is a = 11.10, b = 6.83, c = 12.?? A., β = 102°30', space group C_{2h}^5-$P2_1/c$. Each unit cell contains 4 mols. The C—Cl bond length is 1.71 A., C—C bond lengths in the ring are normal (1.37–1.41 A.); C—N bond lengths are 1.51 A. from sum of covalent radii, but in the o-NO_2 groups the C—N bond length was 1.46 A., whereas in p-position it was 1.38 A. The o-groups are thus nearly perpendicular to the ring, but the p-group is parallel.

G. M. Kosolapoff

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

GOL'DER, G. A.

14669* Physical-Chemical Study of Lithium Peroxide. Fiziko-khimicheskoe izuchenie perekisi litiia. (Russian.) T. V. Rode, T. A. Dobrynina, and G. A. Gol'der. *Izvestiia akademii nauk SSSR, otdelenie khimicheskikh nauk*, 1955, no. 4, July-Aug., p. 611-621.

Includes graphs, tables, diagram. 29 ref.

2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6

S

X-ray investigation of the structure of [illegible] nitroaniline. G. S. Zhdanov and G. A. Gol'der. (L. Ya. Karpov Inst. Phys. Chem., Moscow). [illegible] 1945-[illegible] [illegible] belongs to the monoclinic system; a = 7.51, b = 14.8, c = 7.26 A., β = 94°, the no. of mols. in the elementary cell is 4, the exptl. d. = 1.08, the x-ray d. = 1.72 g./cc., the space group C_{2h}-C 2/c. The nitro group is at an angle of 64° to the benzene ring, the length of the C-N bond is 1.44 ± 0.03 A.; in the amino group the C-N spacing = 1.37 ± 0.03 A., which permits the assumption of a coplanar arrangement of this group with the benzene ring. W. M. Sternberg

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

GOLDER, G. A.

Physicochemical investigation of the system sodium superoxide-sodium oxide. T. V. Rode and G. A. Gol'der. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 299-308.—NaO_2 in an atm. of dry O_2 decomps. at approx. 120°; in dry, CO_2-free air it decomps. at 80-90°. On thermal decompn. NaO_2 gives a succession of solid solns. with the limiting compd., $Na_2O_{3.80}$. $Na_2O_{3.8}$ decomps. endothermically with the production of Na_2O_3, at 250° in O_2 and at 215° in CO_2-free air. Na_2O_3 decomps. slowly, beginning at approx. 350°; it melts at 510°. At 545° Na_2O_2 decomps. to the limiting compd., Na_2O. The existence of a sequence of continuous compds. was detd. in the system NaO_2-Na_2O with limits varying from Na_2O_2 to $Na_2O_{2.44}$. Under the conditions the compd. Na_2O_3 was not detd., but a limiting solid soln. $Na_2O_{2.8}$ which decomps. immediately to Na_2O_2 was found.

J. M. Widom

4

Inst. Gen. & Inorg. Chem. im. N. S. Kurnakov, AS USSR

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6

Gol'der, G. A.

5

Chem

X-ray determination of the structure of indigo and thioindigo. E. A. Gribova, G. S. Zhdanov, and G. A. Gol'der. *Kristallografiya* 1, 53-60(1956).—The Baeyer classical formula of indigo does not explain the absence of geometric isomers, the deep color, and the high chem. and phys. resistivity of this mol. Many hypotheses were developed (Kuhn, *C.A.* 26, 6143; Hodgson, *C.A.* 40, 5045) to give an improved formulation. The authors sublimed indigo and obtained good crystals. The elementary cell dimensions for indigo are: a 9.28, b 5.74, c 12.25 A., β 116°30'; for thioindigo they are: a 7.82, b 3.92, c 20.34 A., β 93°40'. In both compds. Z = 2; the space group is $P2_1/c$. The electronic d. projection on (010) for thioindigo and the stepwise approximation method delivered the following at. coordinates: C_1: x 0.456, z 0.028; C_2: x 0.512, z 0.091; C_3: x 0.870, z 0.125; C_4: x 0.870, z 0.188; C_5: x 0.226, z 0.214; C_6: x 0.068, z 0.177; C_7: x 0.071, z 0.115; C_{8a}: x 0.217, z 0.091; S: x 0.220, z 0.009; O: x 0.656, z 0.108 (*C.A.* numbering). The mol. includes with (010) an angle of 27°. In indigo the inclinations to all 3 planes of the elementary cell are considerable; the plane of the benzene ring is nearly parallel to (210). A 3-dimensional Fourier synthesis gave the following coordinates in indigo: for C_2: x 0.049, y 0.907, z 0.020; C_3: x 0.103, y 0.798, z 0.142; C_{3a}: x 0.307, y [illegible], z 0.138; C_4: x 0.277, y 0.421, z 0.232; C_5: x 0.394, y 0.366, z 0.165; C_6: x 0.373, y 0.201, z 0.087; C_7: x 0.204, y 0.432, z [illegible]; C_{7a}: x 0.208, y 0.602, z 0.029; N: x 0.124, y 0.794, z 0.063; O: x 0.050, y 0.847, z 0.219. In indigo no simple σ bondings occur, also no classic double bonds. The bondings are intermediate between single and double valence bonds, and

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(over)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

Gribova, E.A., Zhdanov, G.S. and Golder, G.A.

only in the benzene rings but also in the heterocyclic portion of the mols. A system of single π electron [illegible] is accomplished; an o-quinoidal inner-ionic constitution is not real. The distance N-O in the indigo mol. is practically the sum of the internal radii of both elements. No [illegible] bonds occur, but between the CO and NH groups the bonding is of the mol.-hydrogen-bond type, and every mol. is bonded to 4 surrounding mols. by such H bonds. The thermal stability of indigo is thus explained. The electronic d[illegible] distribution shows a distinctly decreasing tendency from the center to the periphery of the mol.; this illustrates the thermal oscillations of the whole mol. around its center of gravity. The absence of cis-trans isomers is also confirmed by the results of the structure detn. in the present paper.

W. [illegible]

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

Golder, G. A.

Distr: 4E4j/4E3d

Compounds of constant and of variable composition in the sodium superperoxide-sodium oxide system. T. V. R[illegible] and G. A. Golder. *Proc. Acad. Sci. U.S.S.R., Sect. Chem.* 110, 635-8(1956)(English translation).—See C. A. 51, 14460c. B. M. R.

RODE, T.V.; GOL'DER, G.A.

Compounds of constant and variable composition in the NaO_2-Na_2O system. Dokl. AN SSSR 110 no.6:1001-1004 O '56. (MLRA 10:2)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova Akademii nauk SSSR. Predstavleno akademikom I.I. Chernyayevym.
(Sodium oxides)

AUTHOR: Ozerov, R.P., Gol'der, G.A. and Zhdanov, G.S. 70-2-3/24

TITLE: An X-ray structural investigation of the oxygen vanadium bronzes of sodium and potassium $Me_{0.33}V_2O_5$. (Rentgenografficheskoye issledovaniye struktury kislorodnykh vanadiyevykh bronz natriya i kaliya $Me_{0.33}V_2O_5$.)

PERIODICAL: "Kristallografiya" (Crystallography), [illegible], Vol.[illegible], No.2, pp. 217-225 (U.S.S.R.)

ABSTRACT: Experimental. The valency state of V in bronzes and in vanadium-sulphur-oxygen catalysts is particularly of interest. Crystals of composition $(K,Na)_2O.V_2O_4.5V_2O_5$ were obtained as black needles having a blue metallic lustre. They showed a large number of faces including the simple forms 102, 101, 100, 001 variously developed. X-ray photographs assigned them to the Laue class $2/m = C_{2h}$. Weissenberg and oscillation photographs (11.456 cm diameter camera) with Fe radiation gave unit cell dimensions a = 10.039, b=3.605, c=1[illegible].335 A (all ± 0.005 A) and β =109°12' ± 5', for the sodium compound $Na_{0.33}V_2O_5$. This gives V=524.2 A³. The compound $K_2V_{12}O_{30}$ and $d_{obs.}$=3.57 g/cm³ making z = 1 (0.97). $d_{calc.}$ is then 3.60.

Card 1/3

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70-2-3/24

An X-ray [illegible] of the oxygen vanadium bronze of [illegible] $Na_{0.33}V_2O_5$. (Cont.)

The possible [illegible] groups (from the extinctions) were A2/m, A/2 and Am. On the basis of a knowledge of the crystal chemistry of the [illegible] and of the W bronzes the group A2/m was chosen. This is confirmed by the dimension [illegible] which leads to the [illegible] of octahedra or trigonal bipyramids (see [illegible] Osipov [illegible], 951, 1957). Using Mo radiation 600 reflections were recorded from Weissenberg pictures using comparison scales. No extinction corrections were applied. $P(u,w)$ was constructed. A.D. Wadsley's determination of the structure of $Na_{2-x}V_6O_{15}$ helped in solving this Patterson projection. [illegible] projections for both Na and K bronzes were constructed. Several atoms overlap and this was the reason for repeating Wadsley's work. The Fourier section at $y = 0$ was calculated [illegible] in the K bronze very close to those found by Wadsley (Acta [illegible], 8, 695, 1955) for the Na bronze. A table of interatomic distances is given. Slight differences naturally occur in the Me–O distances (as observed for K bronze first followed by Wadsley's value for the Na bronze); Me–O_3 ([illegible], 2.46); Me–O_5 (2.49, 2.75); Me–O_4 ([illegible], 2.51);

Card 2/3

An X-ray structural investigation of the oxygen vanadium bronze of sodium and potassium $Me_{0.33}V_2O_5$. (Cont.) 70-2-3/24

Me–O ([illegible], [illegible].31); Me–Me (1.[illegible], 2.22). The geometry of the structure is discussed. The structure is built from strongly distorted VO_6 octahedra. The distortion is so great that certain [illegible] ings are better regarded as trigonal bipyramids. The polyhedra differ greatly among themselves V–O distances [illegible] 1.[illegible], 1.[illegible], 1.[illegible], [illegible].00 and 2.[illegible] A. There is a strong [illegible] with the structure of the V oxides. The alkali atoms lie in canals between the octahedra each surrounded by seven oxygens. Seven-fold co-ordination is rare but is also found in the ion $([illegible]F_7)^{-2}$ and in Bi_2Ni.

Card 3/3 There are 5 figures, 2 tables and 20 references, 10 of which are Slavic.

ASSOCIATION: Ya.V. Samoylov Scientific Institute for Fertilisers and Insecto-fungicides. (Nauchnyy Institut po Udobreniyam i Insekto-fungisidam im. Ya.V. Samoylova)

SUBMITTED: September 21, 1956.

AVAILABLE: Library of Congress

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in the elementary mesh conform the assumption (reference 1) that a center of symmetry exists in the molecule of the crystals of the 1st modification. The introduction of an inner hydrogen compound O . . . H-O in the conjugated bond-system must have caused an essential change of the π-electronic interaction in the whole molecule. This must, in return, lead to a redistribution of the electronic density in the molecule. A complete radiographic analysis of the crystals of this modification was interesting therefore. The lengths of the bonds between the atoms in the molecule were computed (II) from the atomic coordinates computed from ρ (Okl)(table 2). The computations of the distances between the atoms were carried out under the assumption that the molecule of the surface yz lies parallel. The angle formed by the bond-line $C_9 - C_{1o}$ with the y-axis of the mesh, is 5o°. The smallest distance between the carbon- and oxygen-atoms in various molecules is 3,1o Å. The results of the radiographic structural analysis confirm the presence of a center of symmetry in the 1st modification of naphthazarine. As mentioned above, all 3 modifications precipitate simultaneously with the crystallization of the solution: 2 centro-symmetrical ones (A), and a none-centro-symmetrical one (B). The

recrystallization of each of these modifications leads in re= turn to the formation of all these 3 modifications, though one of them prevails largely. It may thus be presumed that the tran= sition of an isomer of an A-structure into an isomer of a B-structure (and viceversa) takes place. This transition is ex= plained with scheme III and was presumed in reference 4. The orientation in space of the molecule in the yz-surface achieved by the authors, is very similar to that for the centro-symmetri= cal modification 2) given in reference 3. A three-dimensional synthesis is required for determining the 3rd coordinate x and for defining precisely the obtained results.
There are 1 figure, 2 tables, and 4 references, 1 of which is Slavic.

ASSOCIATION: Physico-Chemical Institute imeni L. Ya. Karpov (Fiziko-khimicheskiy institut im. L. Ya. Karpova)

PRESENTED: November 20, 1957, by N. V. Belov, Academician.

SUBMITTED: August 16, 1957.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620015-6"

20-119-1-23/52

AUTHORS: Dokunikhin, N. S., Gol'der, G. A., Tadanov, G. S.

TITLE: The Radiographic Investigation of 1,4-di-Anilido-Anthraquinone and 1,4-Dimesido-Anthraquinone (Rentgenograficheskoye issledovaniye 1,4-dianilidoantrakhinona i 1,4-dimezidoantrakhinona)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 119, Nr 1, pp. 87 - 89 (USSR)

ABSTRACT: Sulfo acids of 1,4-di-(arylamino)-anthraquinone form an important group of solid dyes for wool. The majority of the 1,4-di-(arylamino)-substitutes of anthraquinone are green. An exception is made by the derivatives in which all hydrogen atoms, in an ortho-position, of the aryl-residues are substituted. Such compounds as well as the corresponding alkyl-amino-and hydro-aryl-amino-derivatives have an intensive bright-blue color. In the presence of methyl-ethyl-groups or of bromine atoms in all ortho-positions of the phenyl residues or in the position of 2,3-anthraquinone respectively

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The Radiographic Investigation of 1,4-di-Anilido-Anthraquinone and 1,4-Dimesido-Anthraquinone

cycles by hydrogen and is caused by the [illegible] of the conjugation -system (Reference [illegible]). [illegible] be desirable to find a direct proof of the flat [illegible] of the molecules of 1,4-di-(arylamino)-anthraquinone in the absence of spatial difficulties. For the purpose of deciding the problem of coplanarity of the benzene nuclei with the plane of the basic part of the molecule, crystals of both compounds mentioned in the title were radiographically measured. The results are given in table 1. From the dimensions of the elementary cell of the first compound can be assumed that the basic part of the molecule is were entirely or almost parallel with the ac-plane, as axis b is the shortest one (8,73 Å). From the conditions of symmetry of the spatial group

$$C_{2h}^5 = P2_1/c$$

Card 3/6

The Radiographic Investigation of 1,4-Di-Anilido-Anthraquinone and 1,4-Dimesido-Anthraquinone

follows that a slip plane with a displacement along axis c runs vertical to axis b. Thereby the 4 molecules occurring in the unit cell are orientated in layers which are perpendicular to axis b. A variant of this orientation is shown by figure 1. It admits a slight turn of the benzene nucleus in relation to the other part of the molecule as well as a certain possible turn of the entire molecule in relation to the plane ac. Thus the packing of the molecules in the crystal does not require an additional change of the angle of rotation of the benzene nucleus as compared to the free molecule. The shortest axis in the crystal of the second compound is the a-axis (7,95 Å). Its length corresponds to the dimensions of the benzene nucleus up to the CH_3-groups connected with it (8,8 Å). A solid packing of molecules in the crystal and the fulfilment of the conditions of symmetry of the spatial group for molecules of the second compound

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The R[illegible]diographic Investigation of 1,4-Di-Anil[illegible] -Anthra[illegible] and 1,4-Dinesido-Anthraquinone

of the methyl gro[illegible]s to all meta-positions of the [illegible] nucleus creates so great s[illegible]tial difficulties that the coming out with the anthraquin[illegible] cycles fr[illegible] the [illegible]planarity amounts to almost 90°. Thereby the inter-m[illegible] linkage is considerably weakened. There are [illegible] [illegible]le, and 5 references, [illegible] of which are [illegible].

ASSOCIATION: Na[illegible]chno-issledovatel'skiy in[illegible]titut [illegible] [illegible]pro-duktov i krasiteley im. K. Ye. Vor[illegible]shil[illegible] (S[illegible]tific Re-search Institute of Organic Se[illegible] and Dyes imeni K. Ye. Voroshi[illegible]ov). Na[illegible]chno-issle[illegible]atel'skiy [illegible]-khimicheskiy institut im. L. Ya. Kar[illegible] (S[illegible]tific [illegible]y-sical-Chemical Research Institute imeni L. Ya. Kar[illegible])

PRESENTED: November 2[illegible], 1[illegible], by N. V. [illegible], Member, A[illegible]demy of Sciences, USSR

SUBMITTED: August 16, 195[illegible]

Card 6/6

PHASE I BOOK EXPLOITATION SOV/[illegible]

Moscow. Fiziko-khimicheskiy institut

Problemy fizicheskoy khimii; trudy, vyp. 2 (Problems in Physical Chemistry; Transactions of the Institute, no. 2). Moscow, Goskhimizdat, 1959. 202 p. 1,000 copies printed.

Editorial Board: Ya. M. Varshavskiy, Doctor of Chemical Sciences, G. S. Zhdanov, Doctor of Chemical Sciences; V. A. Kargin, Academician, Ya. M. Kolotyrkin, Doctor of Chemical Sciences (Resp. Ed.), S. S. Medvedev, Academician; S. Ya. [illegible], Doctor of Chemical Sciences; V. M. Cherednichenko, Candidate of Chemical Sciences; V. S. Chesalova (Editorial Secretary), Candidate of Chemical Sciences, Ed.: I. A. Myasnikov, Tech. Ed.: Ye. G. Shpak.

PURPOSE: This collection of articles is intended for physical chemists.

COVERAGE: The collection is the second issue of the Transactions of the Scientific Research Institute of Physical Chemistry imeni L. Ya. Karpov. It contains 17 articles which review

Card 1/[illegible]

5(2)

SOV/78-4-7-4/44

AUTHORS: Kost, M. Ye., Gol'der, G. A.

TITLE: The Crystal Structure and Density of Cerium Hydrides (Kristallicheskaya struktura i plotnost' gidridov tseriya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 7, pp 1488-1490 (USSR)

ABSTRACT: Cerium hydrides with a composition of from $CeH_{0.2}$ to CeH_3 were investigated. The trihydride was produced in an apparatus described in an earlier paper (Ref 5). The samples poor in hydrogen were obtained by heating and by sucking off the liberated hydrogen. The composition of the hydrides was determined by measuring the hydrogen liberated in a solution of hydrochloric acid. The Debye powder patterns were recorded by means of the camera RKD. The values of the lattice periods are given by table 1. Up to the composition $CeH_{1.5}$ two cubical face-centered lattices exist, which correspond to the metal Ce and to the dihydride. The sample $CeH_{1.97}$ shows a phase in the period 5.55 Å. A further increase of the hydrogen content leads to a reduction of the period to 5.53 Å at $CeH_{2.73}$. If the com-

Card 1/2

SOV/78-4-7-4/44

The Crystal Structure and Density of Cerium Hydrides

position CeH_3 is approached, the lines widen, so that exact calculation of the lattice period is rendered difficult. Because of the great sensitivity of cerium hydrides to vestiges of water, density was determined in an apparatus (Fig 1), in which argon was used as a pyknometric substance, and in which the volume of the sample was determined on the basis of a variation of pressure according to the Boyle-Mariotte law. The density of the various hydrides is given by table 2. It decreases up to the compound CeH_2, after which it rises somewhat up to CeH_3. Figure 2 gives a graphical comparison of density variations with the X-ray pictures, the curve of which shows the presence of two phases (metallic cerium and CeH_2) up to the compound CeH_2. The lines of the metallic Ce then vanish. The phase with the periods 5.645 - 5.612 Å, which was observed by M. C. Auphassorho (Refs 3,4) could not be found. There are 2 figures, 2 tables, and 8 references, 2 of which are Soviet.

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24(4), 5(1) [illegible]

AUTHORS: Gol'der, G. A., [illegible], [illegible], [illegible], G. M., [illegible], Ye. A.

TITLE: The Use of X-Ray Phase Analysis in Chemical Technology (Primeneniye rentgenovskogo fazovogo analiza v khimicheskoy tekhnologii)

PERIODICAL: Zavodskaya Laboratoriya, [illegible], Vol [illegible], Nr [illegible], pp [illegible] - [illegible] (USSR)

ABSTRACT: The present paper lists the results of investigations carried out by the laboratories of the plants "[illegible]", Yaroslavl', GIPI-4, IREA, "[illegible]", [illegible], Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-Chemical Institute imeni L. Ya. Karpov) [illegible] standard domestic X-ray apparatus was used. Since X-ray phase analysis has a low sensitivity for [illegible] it should not be used for determining [illegible] (less than 1-3%). [illegible] analyses of different [illegible] described: 1) A study of titanium [illegible] the optimum production conditions of rutile. [illegible] of [illegible] oxide it was found by X-ray [illegible]

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yellow substance did not correspond to the usual red tetragonal modification of PbO, but to the yellow rhombic modification, and that the color was due to a polymorphous change. 3) By means of X-ray analysis it was possible to simplify the production control of active pyrolusite of the [illegible]. 4) Examinations of domestic and foreign [illegible] were carried out to determine the dispersion degree of the iron oxide. 5) Moreover, the production of thiourea was controlled with regard to dicyan-diamide. 6) The X-ray analysis was also successfully used in the examination of luminophores, which can also be applied for the examination of other [illegible] (e.g. catalysts).

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-khimicheskiy institut im. L. Ya. Karpova (Scientific Research Institute of Physical Chemistry imeni L. Ya. Karpov)

GOL'DEN, G.A. [translator]; DUDAREV, V.Ya.[translator]; SOLOV'YEV, S.P.[translator]; ZHDANOV, G.S., red.; LAPIN, S.I., red.; BELEVA, M.A., tekhn. red.

[Annihilation of positrons in solids] Annigiliatsiia pozitronov v tverdykh telakh; sbornik statei. Moskva, Izd-vo inostr. lit-ry, 1960. 228 p. (MIRA 15:3)
(Positrons)

RODE, T.V.; GOL'DER, G.A.; ZACHATSKAYA, A.V.

Interaction of sodium peroxide and sodium superoxide with sodium bicarbonate. Zhur. neorg. khim. 5 no.3:535-539 Mr'60. (MIRA 14:6)

(Sodium peroxide)
(Sodium superoxide)
(Sodium carbonate)

MIRKIN, Lev Iosifovich; UMANSKIY, Ya.S., prof., red.; GOL'DER, G.A., red.; MAKAROV, Ye.F., red.; MURASHOVA, N.Ya., tekhn. red.; TUMARKINA, N.A., tekhn. red.

[Manual on X-ray diffraction analysis of polycrystals] Spravochnik po rentgenostrukturnomu analizu polikristallov. Pod red. IA.S.Umanskogo. Moskva, Gos. izd-vo fiziko-matem. lit-ry, 1961. 863 p. (MIRA 14:8)
(X-ray crystallography)

GOL'DER, G.A.; TODRES-SELEKTOR, Z.V.; BOGDANOV, S.V.

Structure of benzofuroxan. Zhur.strukt.khim. 2 no.4:478-479 Jl-Ag '61. (MIRA 14:9)

1. Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni L.Ya. Karpova i Gosudarstvennyy nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley imeni K.Ye. Voroshilova.

(Benzofuroxan)

CHETKINA, L.A.; GOL'DER, G.A.; ZHDANOV, G.S.

X-ray diffraction study of dihalogen derivatives of anthraquinones. Kristallografiia 6 no.4:628-629 Jl-Ag '61. (MIRA 14:8)

1. Fiziko-khimicheskiy institut imeni L.Ya.Karpova i Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.

(Anthraquinone) (X-ray crystallography)
(Halogen compounds)

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AUTHORS: Chamova, V.N. and Gol'der, G.A.

TITLE: X-ray investigation of the potassium carbonate peroxyhydrate $K_2CO_3 \cdot 3H_2O_2$

PERIODICAL: Zhurnal strukturnoy khimii, v. 3, no. 2, 1962, 215 - 216

TEXT: One of the authors (Ref.2: Makarov, S.Z., Chamova, V.N., Izv. Akad. Nauk SSSR, Otd. khim. nauk, v. 3, 1958, 1035) discovered a stable solid phase of the above composition. X-ray analysis of this substance was carried out by the powder and monocrystal method, and the crystal was found to belong to the orthorhombic system. The parameters of the elementary cell are : a = 5.50, b = 6.04, c = 17.8 Å. The density of the peroxyhydrate was measured (d = 2.02). There are four molecules in the elementary cell, and the calculated density is d = 2.01

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